



Health, wellbeing and engagement with landscape: a literature review

Report for SAC

**Dr. Stuart Muirhead
University of Dundee**

Table of Contents

Executive summary	3
1. Introduction and structure	7
2. Setting the scene: key terms and concepts	7
2.1) Defining wellbeing: characteristics	8
2.2) Defining wellbeing: landscape	10
2.3) Engaging with wellbeing: policy	11
3. Reviewing wellbeing	14
3.1) Physical wellbeing	15
3.2) Psychological and emotional wellbeing.....	16
3.3) Case study one: social wellbeing and environmental volunteering.....	17
3.4) Case study two: Forestry Commission Scotland and the ‘people agenda’	19
3.5) Case study three: Care farming scope and potential	21
4. Discussion.....	22
4.1) Conclusions.....	22
4.2) Future research agendas	23
4.3) Future policy agendas	25

Executive summary

1. This review will; a) identify existing literature linking health and wellbeing to contact with the natural environment, b) assess the extent to which these terms have been engaged with in policy, c) make recommendations on key gaps in research and policy.

2. Framing the term wellbeing

- a. Wellbeing offers the opportunity to look at both aspects of **wellness** and **unwellness**.
- b. The '**Five ways to wellbeing**' model suggests actions and experiences necessary to enhance wellbeing:
 - i. Connect,
 - ii. Be active,
 - iii. Take notice,
 - iv. Keep learning,
 - v. Give.

3. Wellbeing and natural environments

- a. **Academic geographical literature** has, particularly in the last 20 years, begun to provide evidence that specific natural environments have the ability to promote and maintain health.
- b. There are five ways in which natural environments, as spaces of potential therapeutic encounter, can enhance wellbeing. They can offer:
 - i. An enhanced degree of physical or psychological removal from the everyday,
 - ii. An opportunity to be closer to natural environments,
 - iii. A space that provides opportunities for both solitude and social activity,
 - iv. Ways of shaping collective and social identity,
 - v. The opportunity to exercise and carry out physical activity in these spaces.
- c. Regarding **policy engagements with landscape and wellbeing in the UK and Scotland**, the Scottish Government, since 2002, has started to actively engage more

strongly with nature and green space contact and the relationship this has with wellbeing. Aspects of this engagement can be viewed in the National Programme for Improving Mental Health, the National Performance Framework, the Scottish Health Survey, the Scottish Recreation Survey and the paper *Good Places, Better Health*. In addition, the UK Department for Environment, Food and Rural Affairs (DEFRA) has recently published the Natural Environment White Paper outlining the UK Government's vision for the natural environment.

4. There has been a **major public health cost** to increased levels of illness and disease related to a poor diet and a more inactive and sedentary lifestyle in the UK in the last fifty years. This has occurred in tandem with decreasing contact with natural environments and green spaces.
5. **Green exercise** has the ability to simultaneously address both a lack of physical exercise, but also the missing contact with nature that many individuals experience. This can address four separate aspects:
 - **Sensory stimulation** – Having an embodied and multi-sensory experience of natural landscapes.
 - **Activity** – Feeling positive and energised after conducting physical exercise.
 - **Escape** – Becoming removed from everyday life and travelling to a distant location.
 - **Nature and social connections** – Feeling an attachment to land but also to other people through making friends and expanding social networks.
6. The feeling of **stillness** can be enhanced through contact with natural environments - this is an inner feeling of quiet where the mind is given space to rest.
7. Connecting with nature through becoming in tune with its **ecologies and rhythms** is important to emotional wellbeing, enabling individuals to relax and/or work through specific problems.

8. A number of **therapeutic practices** in particular provide evidence that environmental engagement promotes positive wellbeing. These include garden therapy, healing gardens, therapeutic retreats and care farming
9. **Social contact and networks** are central to wellbeing. These can take the form of friendships and community, but also the shared sense of purpose and feelings of achievement that can be promoted through working with others.
10. The example of **environmental volunteering** is used to illustrate how these aspects of physical, emotional and social wellbeing can weave through active contact with natural environments. This opens up the 'added benefit' of environmental work and the distinctiveness that a contact with nature presents.
11. The **Forestry Commission Scotland** is an example of an organisation that has embraced the 'people agenda', moving from a remit to produce timber, to a range of aims that include encouraging individuals onto their land and providing positive wellbeing through this engagement. This has been promoted strongly in recent years through the influence of **Scottish Government policy**. A number of targets and indicators have been set that include increasing the average score of adults on the Warwick-Edinburgh Mental Wellbeing Scale by 2011 and increasing the proportion of adults making one or more visits to the outdoors per week.
12. **Care farming** is highlighted as a practical example of how managed contact with natural landscapes can be beneficial to both the individuals that take part and those who operate the farms.
13. An increasing **depth of literature** concerned with the relationship between natural environments and wellbeing has emerged in the last ten years. In addition to existing data, the literature highlights opportunities to further the knowledge base by carrying out a **wider scope of research activities**. There must also be recognition of the **ways in which such**



research might impact on policy, while acknowledging that there are still a number of policy areas that need to more fully embrace these issues.

1. Introduction and structure

This review identifies existing literature that links health and wellbeing with an engagement with natural environments and landscapes. It examines both evidence that has emerged through academic and grey literatures, but also connects with how these themes have been addressed through policy engagement in a Scottish context. The review explores the gaps that exist in current knowledge and suggest ways of addressing these. This is achieved by examining both academic and grey literatures relevant to the ways in which contact with natural environments and green spaces can impact wellbeing¹. Evidence from both UK and international literatures has been included. However, as the review is being applied within a UK (and particularly Scottish) context, it is the literature relating to this context which is drawn on most heavily.

Section two will set the scene by introducing the key terms and concepts. This will specifically examine wellbeing characteristics (2.1), wellbeing and landscape relationships (2.2), and how wellbeing has been engaged with in the Scottish and UK policy spheres (2.3). Section three investigates physical (3.1) and mental wellbeing (3.2) in relation to natural environments. This will include three short case studies to explore the relationship between landscape and various aspects of mental, physical and social wellbeing; the first on environmental volunteering (3.3), the second on Forestry Commission Scotland (3.4) and the third on care farming (3.5). Section four discusses the conclusions reached in the report (4.1) and also proposes future research (4.2) and policy (4.3) agendas.

2. Setting the scene: key terms and concepts

Section two will set the context for this review in terms of the characteristics of wellbeing (2.1), the literature which suggests there is a relationship between landscape and wellbeing (2.2) and the

¹ The articles that were included from academic publications were found within established journals and written by frequently cited authors in the field. The grey literature, which includes both policy and practitioner publications, was included to show the current engagement with these terms.

ways in which such issues have been addressed with reference to policy across the UK and within Scotland (2.3).

2.1) Defining wellbeing: characteristics

The initial task in this section will be to usefully define what is meant by 'wellbeing' and discuss the facets to how that is being explored in academic literatures. Wellbeing has been described as 'positive health', or 'a state of physical, mental and social wellbeing'¹. It can be understood as a dimension of a 'social model' of health which locates individual experience within social contexts and is concerned especially with people's interpretation of them². The concept enables a focus on what promotes and protects health, rather than purely on what causes illness³. Consequently, there is a concentration on enhancing or developing *wellness* as opposed to solely curing *unwellness*. This is an important distinction to make as this means practices to aid wellbeing are concerned with every individual and are as much about the upkeep and development of positive health, as they are about helping those with specific problems or difficulties. This also emphasises the point that not all approaches and impacts are experienced or felt in the same way by every individual or group. To frame this report, two models of wellbeing are discussed below. The first is concerned with wellbeing in general, and the second uses the natural environment as a starting point.

The British Government Foresight Programme 2008 report entitled *The five ways to wellbeing*⁴ which reviewed the most up-to-date evidence and proposed five actions that were important to wellbeing that should be carried out in everyday life. These are taken from the report and outlined below:

1. **Connect** - With the people around you. With family, friends, colleagues and neighbours. At home, work, school or in your local community. Think of these as the cornerstones of your life and invest time in developing them. Building these connections will support and enrich you every day.

2. **Be active** - Go for a walk or run. Step outside. Cycle. Play a game. Garden. Dance. Exercising makes you feel good. Most importantly, discover a physical activity you enjoy and that suits your level of mobility and fitness.
3. **Take notice** - Be curious. Catch sight of the beautiful. Remark on the unusual. Notice the changing seasons. Savour the moment, whether you are walking to work, eating lunch or talking to friends. Be aware of the world around you and what you are feeling. Reflecting on your experiences will help you appreciate what matters to you.
4. **Keep learning** - Try something new. Rediscover an old interest. Sign up for that course. Take on a different responsibility at work. Fix a bike. Learn to play an instrument or how to cook your favourite food. Set a challenge you will enjoy achieving. Learning new things will make you more confident as well as being fun.
5. **Give** - Do something nice for a friend, or a stranger. Thank someone. Smile. Volunteer your time. Join a community group. Look out, as well as in. Seeing yourself, and your happiness, linked to the wider community can be incredibly rewarding and creates connections with the people around you.

This typology encompasses a whole range of actions and experiences that involve the individual taking responsibility for their own physical, emotional and social wellbeing. It must be pointed out, however, that these steps may exclude those who cannot engage in some or all of the recommended measures. This may be due to mental or physical barriers that would stop the individual from undertaking these, and highlights the need to acknowledge such restraints when considering wellbeing in general.

The concept of wellbeing comprises two main elements: feeling good and functioning well. The element of feeling good is concerned with an individual's *inner* environment and how they experience positive feelings of enjoyment, happiness, contentment and engagement. The second element, functioning well, is more involved with *outer* relationships. This asserts that individuals should function socially in the world through successful relationships, have control over their

actions and have a sense of purpose and achievement. Although not explicitly mentioned in the *Five ways to wellbeing*, natural landscapes can play an important role in this.

It was noted in the report *Healthy parks, healthy people*⁵ by Maller *et al.* in 2002 that separate strands of research, into social capital and into the health benefits of contact with nature, merged in anecdotal and empirical evidence. They argued that these research strands were beginning to demonstrate that nature-based group activities had spin-off mental health benefits that were related to a combination of exposure to natural environments, increased levels of physical exercise and increased social contacts and networks. This research and evidence base has been taken further in recent years.

2.2) Defining wellbeing: landscape

Academic geographical literature has, particularly in the last 20 years, begun to provide evidence that specific natural environments have the ability to promote and maintain health⁶ and show how these spaces can be viewed as particularly therapeutic. This is not to say that all natural environments and green spaces inherently lead to enhanced wellbeing. Instead, these spaces can provide distinct benefits when these spaces are engaged with in positive ways⁷. As a second wellbeing frame Collins and Kearns⁸ focus on landscape. This is a geographical perspective on wellbeing which examines the importance of physically *being* in certain environments, as well as the activities that are undertaken in these locations. They outline five ways in which natural environments can be viewed as spaces of potential therapeutic experience that could enhance wellbeing:

1. an enhanced degree of physical or psychological removal from the everyday,
2. an opportunity to be closer to natural environments,
3. a space that provides opportunities for both solitude and social activity,
4. ways of shaping collective and social identity,
5. the ability to exercise and carry out physical activity in these spaces.

These first four ways are drawn from Conradson's work on therapeutic landscape experiences⁹. These aspects and issues around individual and group wellbeing will be used to shape and illustrate the rest of the review. Before this, it is necessary to examine how the term wellbeing and the relationship it has with natural landscapes and green spaces have been engaged with by policy makers.

2.3) Engaging with wellbeing: policy

The UK government has started to give more attention to the relationship between wellbeing and the natural environment, even if this is not fully understood. The consultation on the UK 2005 sustainable development strategy, *Securing the Future*, revealed concern that government policy was focussed too strongly on increasing GDP² and neglected wider quality of life issues.¹⁰ The strategy identified a need to ensure that wellbeing issues are being tackled consistently, and that government is influencing these issues in an effective manner. To address this, the strategy committed the government to obtaining a more nuanced understanding of wellbeing through the funding of, and engagement with, 'cross-disciplinary work to bring together existing research and international experience and to explore how policies might change with an explicit wellbeing focus'. To take this forward, Richard Price, Chief Economist at the UK Department of Environment, Food and Rural Affairs (DEFRA) said in November 2010:

*'The relationships between wellbeing and the environment are much researched but not always well understood. We can all intuitively understand enjoyment of the environment because we experience it... But more complex areas like the impact of environmental assets on health are harder to quantify.'*¹¹

He describes environmental assets as providing a flow of benefits called *ecosystems services*. One of these services is *cultural services* and includes non-material aspects such as education, inspiration and recreation. He argues that DEFRA should use a range of techniques, developed with researchers, to ensure that the services the environment provides are harnessed and

² The GDP (Gross Domestic Product) of a country focuses on the market value of the goods and services produced within a set period of time. This is often used as an indicator of a country's standard of living.

reflected in policy making and advice to ministers. He points to the 'strong evidence on the value of urban green spaces for health' and refers to the UK Governments Natural Environment White Paper. This paper (published in June 2011) was described as being 'a bold and ambitious statement outlining the government's vision for the natural environment, backed up with practical action to deliver that ambition'¹². The paper states:

*'A healthy, properly functioning natural environment is the foundation of sustained economic growth, prospering communities and personal wellbeing... This is why we must properly value the economic and social benefits of a healthy natural environment while continuing to recognise nature's intrinsic value.'*¹³

One of the themes in the paper is that of 'reconnecting people and nature' and creating a new and more holistic approach to managing the natural environment, growing a green economy and monitoring and reporting progress. In the Scottish context, the Scottish Government has started to engage in a much stronger fashion with the concept of the term wellbeing and the relationship this can have with natural environments and green spaces. This has included the carrying out of surveys on the relationship between wellbeing and the proximity of one's home to a green space¹⁴. The quality of local green space is positively associated with self-reported health, overall life satisfaction, social trust and a sense of community cohesion, even after age, income and area deprivation are taken into account. For example, 43% of people who are very satisfied with their local green space said their health is very good compared with 26% of those who were neither satisfied or dissatisfied or fairly or very dissatisfied.

Surveys were also completed every two years between 2002-2008 to inform the *National Programme for Improving Mental Health and Wellbeing* that was set up by the Scottish Executive¹⁵. *These surveys* also indicated a link between social isolation and poor mental health. There were also clear signs that the respondents themselves felt that spending time with close family and friends had a positive influence on their mental health, along with leisure activities and hobbies, good weather and financial security. However, it is not possible for such a study to identify causation and a different, longitudinal design would be required to investigate the direction of the relationship between issues such as social isolation and mental health and wellbeing.

In addition, the Scottish Government set out targets and indicators as part of the National Performance Framework¹⁶ in 2007 that included ‘increasing the average score of adults on the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) by 2011’. This objective regarding the WEMWBS, developed in 2006, drew on the *Scottish Health Survey* which asked respondents to read fourteen separate statements describing feelings relating to mental wellbeing. It then asked them to indicate how often they had felt a certain way over the previous two weeks, using a five point scale (ranging from none of the time, to all of the time). The overall score was calculated by totalling the scores for each item (minimum possible score was fourteen and the maximum was 70); the higher a person's score, the better their level of mental wellbeing. This has remained relatively steady from 2006, when the score was at 51, to 2009 when it was at 49.8¹⁷. Another indicator, in this case directly related to natural environment contact was to ‘increase the proportion of adults making one or more visits to the outdoors per week’¹⁸. Recorded in the *Scottish Recreation Survey*, there has been a slight rise in these visits (from 44% in 2006, to 46% in 2009). These separate aspects of natural landscape contact and wellbeing have come together even more strongly in the past few years.

In the Scottish Government paper published in 2008, *Good Places, Better Health*¹⁹, it is stated that:

‘It is vital... that we achieve a better understanding of the subtle and complex contribution of environment to health and wellbeing. Today’s issues are less about toxic or infectious threats but rather the capacity of ugly scarred and threatening environments to foster hopelessness and stress, discourage active healthy lives and healthy behaviours.’

This document accepts that ‘the physical environment that surrounds us is key to our health and wellbeing’ and that ‘we now recognise an additional need to create positive physical environments which nurture better health and wellbeing.’ There is an intention in the document to make stronger connections between environment and health policy and actions, using strong evidence that can be applied both to local and national contexts. This works in tandem with a number of further action plans and policies that run through to 2011, including *Towards a Mentally Flourishing*

*Scotland*²⁰. This document sets out the strategy for the Scottish Government to positively impact mental health through targeting specific groups, for example *infants, children and young people*. A number of commitments to work with the NHS and groups such as the National Union of Students are outlined. It is recognised that there ‘is no single solution to achieving outcomes in mental health improvement and no single sector, agency or programme can deliver this agenda on its own.’ Consequently, there is a focus on the breadth of support that is needed and the importance of varied and tailored approaches by a number of partnerships, communities and individuals. These initiatives clearly show that the Scottish Government are open to engaging with the these terms, and an awareness of the impacts that contact with nature can have on mental health and wellbeing.

Overall, it has been shown that ‘wellbeing’ can be understood as a holistic term, encompassing physical, mental and social components. Links between wellbeing and engagement with the natural environment have increasingly been made by researchers, particularly in the field of geography. This has been accompanied with an increasing engagement by policymakers and practitioners within Scotland and across the UK with the natural landscape as a means to facilitating wellbeing. Section three goes on to explore in more depth physical and mental wellbeing, before illustrating ways in which these have been developed through engagement with the natural environment in particular case study examples.

3. Reviewing wellbeing

Having identified the ways in which the properties of wellbeing have been defined, the nature of the relationship between landscape and wellbeing, and how these have been engaged with in the policy context, section three reviews in more depth research relating to physical (3.1) and psychological and emotional (3.2) wellbeing in the context of engagement with the landscape, whilst sections 3.3 – 3.5 offer case studies which draw these strands together.

3.1) Physical wellbeing

It is useful here to identify why this aspect of wellbeing is of particular contemporary importance. A combination of ill-health resulting from poor diet²¹ and a more sedentary lifestyle in the UK has resulted in a major public health cost. A balanced diet and raising levels of physical activity have been linked to increases in life expectancy²². However, in the last fifty years, the UK has witnessed a fall in levels of physical activity that has resulted in major health problems and economic impacts that cost the economy billions of pounds a year²³. In addition to these health problems, a sedentary lifestyle has also resulted in reduced contact with nature²⁴. The concept of 'green exercise' addresses both these problems. Hine *et al.*, in a study on the effects of green exercise in the countryside²⁵, found four principles upon which these principles are based:

1. Sensory stimulation
2. Activity
3. Escape
4. Nature and social connections

The remainder of section 3.1 will examine the first three principles and how far these findings overlap with other authors,

Sensory stimulation comes from being physically immersed in a landscape. The aesthetic appreciation of landscape vistas, of beautiful scenery, are very immediate visual stimulants²⁶. The rushing of rivers, the rustling of leaves and the passing calls of wildlife add to the sounds of natural environments. The smell of pine forests, the bracing nature of a cold wind or the bright taste of fresh berries enhance the sensory stimulation that individuals feel and value. These all combine to complete this sense of immersion that comes from just being located in these landscapes. The very term wellbeing implies the embodiment that is needed to *be somewhere*. Embodiment is a concept that assumes the experiences of the individual are shaped by the active and reactive entity that is their body²⁷. In other words, an experience can be felt through the body and its *fleshy reality*²⁸.

This form of green exercise activity enhances wellbeing in terms of making individuals more energetic, giving them fresh air and feeling more physically fit, but it also impacts their mental wellbeing. The physical body is where wellbeing is first experienced, where emotions and feelings are first expressed²⁹. Therefore, physical wellbeing is about not only these positive influences on physical health (in tackling issues such as obesity and heart disease), but also emotional health. It is the combination of these that becomes more distinct when considering wellbeing and engagement with natural landscapes. This has been put into practice by the British Trust for Conservation Volunteers (BTCV) through *Green Gyms*³⁰. This is a volunteer scheme that offers individuals the chance to improve their physical wellbeing, while working on environmental issues. BTCV have set a target to give the opportunity for 500,000 individuals between 2009-2013 to become fitter and improve their mental health through the active environmental activities that they run.

The third principle of escape straddles both physical and emotional wellbeing. This has been attributed to escaping the pressures of modern living and gaining a connection to the plants and earth in the form of multi-sensory stimulation and a very embodied interaction with the natural surroundings³¹. Ideas of escape involve the desire to remove oneself *from* something (such as a mundane job or the recent breakdown of a relationship). Removal is important as it is physically distant from the everyday³². It can be made to be both distant in terms of how far away it is, but also distant in terms of giving the opportunity for solitude and time to think. It is here that psychological and emotional wellbeing becomes more prominent.

3.2) Psychological and emotional wellbeing

This removal from the everyday, in combination with being closer to natural environments, gives individuals time to think and recharge. Conradson describes this as *stillness* and argues that this experience is more valuable in natural and green spaces³³. He attributes this to becoming closer to the ecologies and rhythms of life and having the time to ponder different perspectives on circumstances or problems. The therapeutic potential of an environment can therefore be enhanced by this closeness to natural processes.

The rhythms of life described by Conradson also show the importance of seasonality and plant lifecycles. These ideas have been employed in therapeutic practice in a number of cases, three of which will be summarised below.

The first of these is *garden therapy*. This is a form of occupational therapy used in institutions such as children's homes, residential care homes and psychiatric institutions³⁴. Therapists and participants report a variety of positive outcomes from garden therapies, including social integration, increased self-confidence and self-worth, improved concentration, learning of practical skills and structure/routine³⁵.

The second case is *healing gardens*. These are specifically designed to support recovery processes by aiding recovery from stress. These are often created at hospitals, residential care homes and other care facilities. The majority of research in this area, as with other therapeutic encounters is often descriptive and case study based. However, there is a growing literature base. One such study made a comparison between Alzheimer's patients from facilities with and without a garden³⁶. The patients who had use of a garden were less troubled by negative reactions and fits of anger than patients without access to a garden.

The third case is specifically designed *therapeutic retreats*. These can be summer camps that make use of the natural environment to enhance the experience³⁷ or they can be more holiday-based in their nature. One example is a yoga and massage retreat in Southern Spain that offers recuperation and the 'creation of healthy bodies' with nature as an active participant³⁸. Consequently, these therapeutic encounters with nature are not always completely natural, but designed. Aspects of the natural can be deliberately used to make experiences more therapeutic. In the following sections, case studies will be used to examine aspects of landscape and wellbeing interactions.

3.3) Case study one: social wellbeing and environmental volunteering

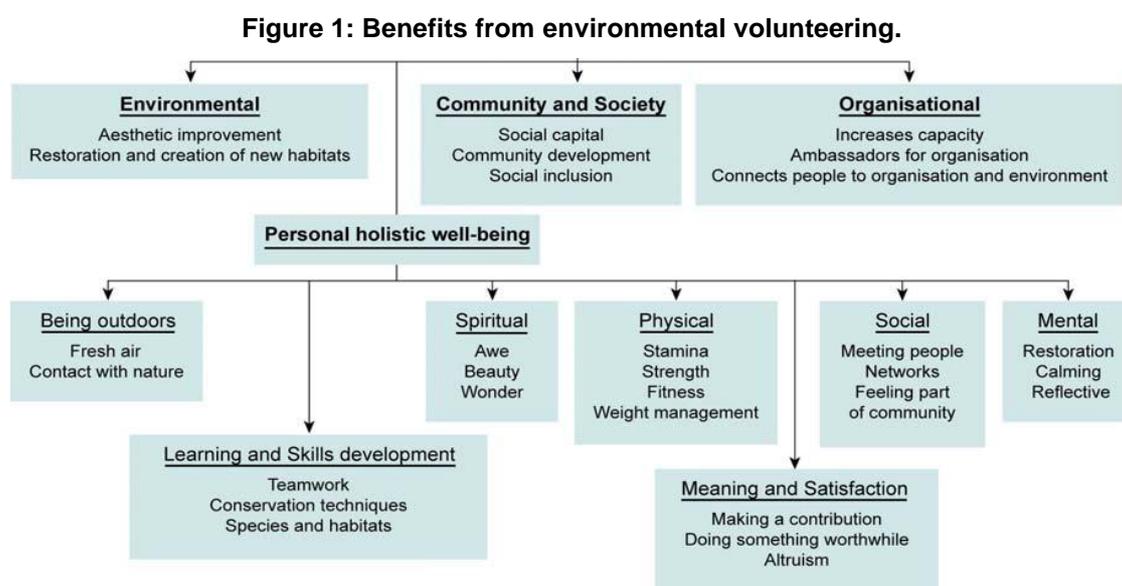
Hine *et al.*'s fourth principle of nature and social connections is very much based around the emotional and social aspect of green exercise activities, in that the enjoyment came from spending

time with friends and family, having contact with animals, visiting places that held fond memories, and also finding spiritual wellbeing in the connection to nature and contrasting seasonal and landscape timescales. It is the interconnectedness of these aspects that will be highlighted in this section and case study.

‘Social capital should aim to not only bond individuals together but also to create bridges of reciprocity and trustworthiness between their members. Bridges of reciprocity and trustworthiness are embodied in coordination and communication, past success and collaboration’ ³⁹

The quotation above illustrates the importance of shared experience and group work. Working with others towards a common goal gives the opportunity to make friendships and enhance social networks, but also provides a sense of accomplishment and achievement that can be shared by others. This has been shown to improve a sense of wellbeing⁴⁰. This can be applied to many settings and does not have to be solely applicable to group work carried out in natural landscapes. Natural landscape work can, however, provide something distinctive. The example of environmental volunteering will be used to illustrate this.

Figure 1 shows the benefits that can be derived from environmental volunteering. Again, this reinforces the idea that these wellbeing benefits can be woven through a physical contact with



Source: Adapted from O'Brien *et al.* (2008)⁴¹.

natural landscapes. Many of the personal holistic wellbeing categories, above, can also be applied to the therapeutic practices that were outlined in the previous sections. The extra social and skills-based benefits shown by these encounters are learning and skills development and contribution, making a meaningful contribution, and also being able to feel part of a community. Skills can not only be learned, but volunteers can also bring their own skills to a situation, providing the satisfaction of being able to impart knowledge and help others.

Community involvement can refer either to involvement in the community of a small group, or a wider area community, helping to provide individual and group resilience⁴². Making this environmental contribution can be important because this can function across timescales and lifespans. The care of plants and animals promotes patience and sensitivity and a need to be in-tune with other rhythms. In the case of environmental volunteering, for example, volunteers may never see the trees they planted become a fully grown forest. However, they do take pleasure from being part of the process. This can put their own worries into perspective and help them to take a step back from their everyday life and see themselves as part of something bigger, not just through their friendship and community networks, but also through their contribution to a future natural environment⁴³. These ideas have been expanded upon by the Scottish Government and the Forestry Commission Scotland (FCS).

3.4) Case study two: Forestry Commission Scotland and the 'people agenda'

This approach to studying environmental volunteering, as well as the other examples described above, reflects the change in approach that organisations such as the FCS have taken in terms of their organisational remit and philosophy. The FCS remit has changed over time, from a sole interest in productivist notions of timber production, to a more 'people friendly approach'. The FCS is used here as a case study of the 'people agenda' that has emerged⁴⁴. They are now looking to find ways of encouraging people on to their land (volunteering being a part of this), as well as funding studies of how these activities can enhance health and wellbeing. The FCS is a non-ministerial government department that is responsible for forestry in Scotland. Forestry is now an issue devolved to the Scottish Parliament so the FCS works closely with Scottish Government

policy to deliver its remit. This is a remit that has morphed since the Commission's inception almost a century ago when its remit was solely to provide a timber resource in the country after the short supplies that were experienced in the First World War. This change in forestry can be viewed as a component of 'a wider picture of institutional change in the countryside... Since the debate about what and who the countryside is for goes beyond forestry, the issues raised here are also relevant to other institutions of the society/environment relationship'⁴⁵.

The latest Scottish Forestry Strategy⁴⁶ defines the new focus of the organisation. Within the four principles of the strategy are the words 'sustainable', 'social inclusion', 'communities' and 'people':

'By the second half of this century, people are benefiting widely from Scotland's trees, woodlands and forests, actively engaging with and looking after them for the use and enjoyment of generations to come. The forestry resource has become a central part of our culture, economy and environment.'

- *Sustainable development – underpinned by sustainable forest management.*
- *Social inclusion - through helping to provide opportunities for all, and helping to build stronger communities.*
- *Forestry for and with people.*
- *Integration with other land uses and businesses.'*

This highlights how the Scottish Executive viewed the role of recreational and accessible forestry at the end of the twentieth century, as being an integrated resource with people at the heart of future planning. This linkage between people and place is further highlighted by the Woods for Health FCS publication⁴⁷. This document integrates FCS policy with overall Scottish Government objectives:

'The Scottish Government's implementation plan Good Places, Better Health aims to ensure greater connections between environment and health policy. As the forestry directorate of the Scottish Government, advising on and implementing forestry policy and managing the national forest estate, Forestry Commission Scotland has a key role to play in helping to achieve this aim.'

The example of FCS has been used to reflect wider Government and societal aspects of the relationship between landscapes and health and wellbeing. Landscapes are now being viewed as vehicles to improve health, not merely as a resource to be kept at arms length.

3.5) Case study three: Care farming scope and potential

The final case study to explore in relation to wellbeing is that of *care farming*. Care farms are agricultural holdings that offer a supervised space in a natural environment that aims to promote mental and physical health through engagement with farming activity. This is carried out with the particular purpose to provide health, social or educational care services for one or a range of vulnerable groups of people⁴⁸. Tasks can include animal husbandry (livestock, small animals, poultry), crop and vegetable production or woodland management. Participants can be referred in a number of ways, through social services, health care trusts, community mental health teams, education authorities, probation services or through family or self-referral. They can attend the farm as part of a structured care, rehabilitation, therapeutic or educational programme, or more informally. This form of engagement includes all the aspects of the *Five ways to wellbeing* (connect, be active, take notice, keep learning, give) discussed in the introduction and also encompasses the physical and emotional contact with natural landscapes that can further enhance wellbeing in specifically tailored and managed situations.

A questionnaire survey undertaken by the University of Essex in 2007 received a response from 76 care farms in the UK that employ 355 full-time and 302 part-time staff, together with 741 volunteers⁴⁹. Across these farms, they found 5869 users per week. These numbers are clearly substantial, but on a national level, there is scope for expansion. Moreover, within these numbers, there were great variations across usage and the variety of client groups. This is very much a strength in terms of the groups that can benefit from care farming, but it can also present a challenge when attempting to construct an 'ideal' or 'typical' care farm. The focus must therefore be on the diversity of impacts that care farming can bestow. The care farmers themselves reported a range of benefits to the participants. These included an improvement in physical health, farming skills and a variety of mental health benefits (improved self-esteem and wellbeing, improvement in mood, increased self-confidence, enhanced trust in others and calmness). They also gave

examples of social benefits to the participants that included independence, formation of a work habit and the development of social skills and personal responsibility. There is a deliberate aim in care farming to combine the care of people with the care of the land. In addition, care farms bridge the gap between the current pressure on social care and the pressure on farming. These benefits show how the combination of the environment and the task can enhance aspects of individual and collective wellbeing.

Overall it has been shown that engagement with the natural environment, through addressing key components of 'green exercise', has the capacity to enhance physical, emotional and psychological wellbeing. Therapeutic practice has engaged with this agenda through, for example, garden therapy, healing gardens and therapeutic retreats. Examples through which policymakers and practitioners have increasingly become involved with this agenda include formal environmental volunteering (for example BTCV) and the increasingly prominent 'people agenda' of non-departmental public bodies such as the FCS. The potential for other activities, such as care farming, to have the capacity to meet such aims and objectives has also been outlined.

4. Discussion

This final section draws overall conclusions on the basis of the findings presented here (4.1) before identifying potential future research agendas (4.2) and policy implications (4.3).

4.1) Conclusions

The evidence shown above has illustrated how research into wellbeing and natural environments has accelerated over the last ten years. This has started to build on an overwhelming evidence base arguing that contact with natural spaces can be beneficial to relatively *well* and *unwell* individuals. Much of this research has now started to bring together the physical wellbeing benefits of exercising outdoors, of spending passive time there, and also of the multi-sensory exposure and embodiment that this provides. This exposure also aids in emotional and psychological wellbeing and the bodily experience is central to that. Individuals can experience escapism and

removal from the worries of everyday life. This can be experienced physically by travelling to distant locations, but it can also be achieved mentally by giving opportunities for *stillness*.

Specific therapeutic practices have been researched that attempt to harness the potential that natural environments have to enhance wellbeing. Care farms are one example that demonstrate how these wellbeing findings have started to open up practical and beneficial opportunities to harness these effects, with the backing of evidence-based research. This example also explores how contact with animals (in combination with a natural landscape) influences wellbeing of particular groups and/or individuals. In the context of care farming and similar projects, this suggests such initiatives can weave together the *Five ways of wellbeing* with the therapeutic landscape potential agenda. This gives the opportunity to discover new ways of understanding and using wellbeing through working with different groups of people with varying needs. This uses the positive evidence that already exists but there are a number of areas of research that require further exploration.

4.2) Future research agendas

While aspects of sensory stimulation and escapism presented by natural environments offer positive benefits to wellbeing, it should be noted here that it is not always sufficient simply to be in a natural environment to receive a benefit. Instead, there are particular engagements with nature that appear to combine to enhance wellbeing particularly effectively. There is an advantage to paying attention to the artistry of the contact, it is not just where an individual is, but also what they are doing and why they are doing it. This is not the same for everyone:

'Some people learn to enjoy wild, rugged landscapes while others learn to love woodlands, or deserts, or cities. Some learn to identify and empathize with snakes, or fleas, or spiders, while others learn indifference, or fear, or revulsion. Some learn to be excited by success in sport, or by money, or political power, or the conspicuous consumption of material wealth, while others learn to be repelled by these things. Some find contentment in family relationships, while others fear commitment and responsibility'.⁵⁰

Wellbeing should not be viewed as a solidified entity. It is not sufficient to understand wellbeing as simply having a singular meaning for every individual and seek to apply one solution to improve or enhance that wellbeing. Individuals have different needs, desires, problems and fears. An open green space can be freedom to one person and oppressive exposure to another. Consequently, one major area that requires further research is the identification of the barriers of contact with natural environments, especially those that can exist amongst harder to reach groups⁵¹. There is also a balance to be found between conducting research that looks solely at deprived areas and/or groups and those that look at the whole population. This may provide a broader picture, while also including the detail that is required to address differing individual wellbeing needs.

Another challenge for researchers is to conduct studies that not only capture the diversity of engagement with natural landscapes, but at the same time, connecting the impacts to wider bodies of evidence. This would enable the comparison between different forms of nature and wellbeing initiatives, and the monitoring and evaluation of the larger scale health benefits of landscape contact. Furthermore, research into the more longitudinal wellbeing effects of active nature contact - examining causal impacts on individuals over longer periods of time - is also essential. This gives the opportunity to monitor and evaluate the benefits of this contact, while also contributing towards the building of a more robust evidence base to influence policy making. One way of doing this may be to calculate a monetary value that is attached to natural landscape contact. Studies have started to conduct these types of analyses⁵² and communicate the impacts of natural landscape contact in a novel manner which can be usefully disseminated to a wide audience.

In summation, future research directions must fill the gaps that currently exist in the evidence base. Firstly, research must pay greater attention to hard to reach groups and the barriers to participation. Secondly, research must adopt more robust methods of connecting evidence and evaluating the impact of natural landscape contact across a wide range of interactions. An element of this involves a more longitudinal analysis of the impacts of green space contact, including paying attention to the importance of *how much* contact is required to positively influence wellbeing, whether it be daily, weekly or less often. Finally, research must take responsibility for effectively communicating these landscape/wellbeing relationships. This may involve embracing

economic arguments that can be presented alongside the existing strong evidence base of benefits to mental and physical health.

4.3) Future policy agendas

Many organisations and policy makers have already started to acknowledge the positive relationship between natural landscape contact and wellbeing. This has been reflected in the literature review and the policy initiatives explored above. The policy areas that can be influenced by understanding relationships between natural landscapes and wellbeing are wide ranging. The care farming case study is a strong example of the overlapping policy areas that are affected. These areas include: health and social care, education, training, employment and rural development. Care farming shows there is a possibility to view agricultural and natural landscapes as multifunctional. This involves examining not only the benefits to the individuals taking part, but also to those farmers who diversify their operations in an extremely strained economic climate. At a time where there is financial pressure across all these areas, it must be in policy makers' interests to address these issues in innovative ways. Pursuing this inclusive line of enquiry acknowledges the possibility to further explore the relationships between natural landscapes and wellbeing. This would also allow investigation of how far governments can encourage/facilitate wellbeing through direct and indirect influence and whether 'measuring' wellbeing or natural landscape is useful in controlling policy direction. Policy makers face a challenge of increasing the number of people who positively engage in activities in natural landscapes, both in terms of those who do not engage and also increasing the participation of those who do. Table 1 shows the breadth of these policy engagements to specific policy areas and gives recommendations to the type of intervention that would be required.

The example of the changes in the Forestry Commission Scotland illustrated that both they, as practitioners, with the policy makers in the Scottish Government, have incorporated the 'people agenda' through their remit and organisational philosophy. How these current plans and agendas are examined for their level of success and/or failure remains to be seen, however. As the evidence base is relatively young, and these specific policy themes (some running up until 2013) are at an early stage, analysis is challenging. What can be recognised is the importance of

Table 1: Policy areas to be addressed in terms of green space and wellbeing recommendations.

Policy area:	Type of intervention required:
Access and recreation providers	<ul style="list-style-type: none"> • Maintenance of paths • Sustainable transport • Provision of facilities and information
Agricultural managers and policy makers	<ul style="list-style-type: none"> • Use agricultural reform to increase access • Promote farming and countryside as part of public health provision
Schools	<ul style="list-style-type: none"> • All primary children access green space • Establish on-site gardens • More physical activity
Health sector	<ul style="list-style-type: none"> • Physical Activity Plan should include use of green space • NHS focus on therapeutic value of outdoors • Reform hospital design
Planners and developers	<ul style="list-style-type: none"> • Take account of value of green space/nature
Social services	<ul style="list-style-type: none"> • Encourage value of green exercise for socially excluded groups • Consider value of green exercise for anti-social behaviour amongst young people
Environmental managers	<ul style="list-style-type: none"> • Revise local and national Biodiversity Action Plans to include health benefits
Sports and leisure	<ul style="list-style-type: none"> • Fitness centres – green views? • Strategic planning for both formal and informal recreation activities
Partnerships	<ul style="list-style-type: none"> • Better links between public/private sectors • Need for cross-disciplinary links across policy areas

Source: Collated from Pretty *et al.* (2005)⁵³.

researchers, policy makers, practitioners and funders working across interest areas (as highlighted in Table 1) and in partnerships to ensure that there is healthy contact across these levels. The resultant policy agenda would have to go beyond a popularised catch-all state that has sometimes been used across a range of public, policy, popular and academic spheres, towards one that can instead be actively used to enhance lives in inventive and practical ways⁵⁴.

¹ World Health Organisation (1948) *Preamble to the Constitution of the World Health Organization*, as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States. Official Records of the World Health Organization, 2, p100.

² Cattell, V, Dines, N, Gesler, W, Curtis, S (2008) 'Mingling, observing, and lingering: Everyday public spaces and their implications for well-being and social relations', *Health & Place*, 14, pp544–561.

³Blaxter, M (1990) *Health and Lifestyles*. Tavistock/Routledge: London.

⁴ Aked, J, Marks, N, Cordon, C and Thomson, (2008) *Five ways to wellbeing*. Accessed: 23/04/11. Available at http://www.neweconomics.org/sites/neweconomics.org/files/Five_Ways_to_Well-being_Evidence_1.pdf

⁵ Maller, C, Townsend, M, Brown, P and St Leger, L (2002) *Healthy Parks Healthy People – a Review of Current Literature*. Deakin University Faculty of Health and Behavioural Sciences, Melbourne.

⁶ Gesler, W (1992) 'Therapeutic landscapes: medical issues in light of the new cultural geography', *Social Science and Medicine* 34(7), pp735-746.

⁷ Thrift, N (1998) 'Steps to an Ecology of Place', in Massey, D, Allen, J and Sarre, P (eds) *Human Geography Today*. Policy: Cambridge.

⁸ Collins, DCA and Kearns RA (2007) 'Ambiguous landscapes: Sun, risk and recreation on New Zealand beaches', in Williams, A (ed) *Therapeutic Landscapes*. Ashgate: Aldershot, pp15-32.

⁹ Conradson, D (2005) 'Freedom, space and perspective: Moving encounters with other ecologies', in Bondi, L, Davidson, J, Smith, M (eds) *Emotional Geographies*. Aldershot: Ashgate, pp103-116.

¹⁰ DEFRA (2005) *Securing the Future: UK Government Sustainable Development Strategy*. Accessed: 07/05/11. Available at: <http://www.defra.gov.uk/publications/2011/03/25/securing-the-future-pb10589/>

¹¹ Price, R (2010) *The environment, wellbeing and policy in the UK: speech at the Prime Minister's wellbeing conference*. Accessed: 06/05/11. Available at: <http://archive.defra.gov.uk/evidence/series/documents/wellbeing-conference-speech101125.pdf>

¹² DEFRA (2011) *Natural Environment White Paper*. Accessed: 6/05/11. Available at: <http://www.defra.gov.uk/environment/natural/whitepaper/>

¹³ DEFRA (2011) *The Natural Choice: securing the value of nature*. Accessed: 18/06/11. Available at: <http://www.archive.defra.gov.uk/environment/natural/documents/newp-white-paper-110607.pdf>

¹⁴ Scottish Government (2010) *Scottish Social Attitudes Survey 2010: Sustainable Places and Greenspace Research Findings No. 7/2010*. Accessed: 18/04/11. Available at: <http://www.scotland.gov.uk/Publications/2010/07/01091850/1>

¹⁵ Scottish Government (2008) *Well? What do you think?: The Fourth National Scottish Survey of Public Attitudes to Mental Wellbeing and Mental Health Problems Research Findings No. 84/200*. Accessed: 18/04/11. Available at: <http://www.scotland.gov.uk/Publications/2009/09/15112214/1>

¹⁶ Scottish Government (2007) *Scottish Budget Spending Review 2007 - Chapter 8: A National Performance Framework*. Accessed: 24/04/11. Available at: <http://www.scotland.gov.uk/Publications/2007/11/13092240/9>

¹⁷ Scottish Government (2011) *National Indicator: Increase the average score of adults on the Warwick-Edinburgh Mental Wellbeing Scale by 2011*. Accessed: 02/05/11. Available at: <http://www.scotland.gov.uk/About/scotPerforms/indicators/mentalWellbeing>

¹⁸ Scottish Government (2011) *National Indicator: Increase the proportion of adults making one or more visits to the outdoors per week*. Accessed: 24/04/11. Available at: <http://www.scotland.gov.uk/About/scotPerforms/indicators/visitOutdoors>

¹⁹ Scottish Government (2008) *Good Places, Better Health: A new approach to environment and health in Scotland – An Implementation Plan*. Accessed: 20/04/2011. Available at: <http://www.scotland.gov.uk/Resource/Doc/254447/0075343.pdf>

²⁰ Scottish Government (2008) *Towards a Mentally Flourishing Scotland: Policy and Action Plan 2009-2011*. Accessed: 18/04/11. Available at: <http://www.scotland.gov.uk/Publications/2009/05/06154655/0>

²¹ Pretty, J (2002) *Agri-Culture: Reconnecting People, Land and Nature*. London: Earthscan.

²² Hine, R, Peacock, J and Pretty, J (2008) *Care farming in the UK: Evidence and opportunities*. Report for the National Care Farming Initiative (UK).

²³ See reference 22 (Hine *et al.*, 2008).

²⁴ Pretty, J, Griffin, M, Peacock, J, Hine, R, Sellens, M and South N (2005) *A countryside for health and wellbeing; the physical and mental health benefits of green exercise*. Countryside Recreation Network, Sheffield.

²⁵ Hine, R, Peacock J and Pretty, J (2006) *Green Lungs for the East of England*. Report for the National Trust.

²⁶ Cooper, H, Ginn, J, and Arber, S (1999) 'Physical activity: recreational, home-based and walking', *Health-related behaviour and attitudes to older people: A secondary analysis of national datasets*. Health Education Authority: London, pp73-98.

Hartig, T (2008) 'Green space, psychological restoration, and health inequality', *Lancet* 372 (9650), pp1614-1615.

²⁷ Parr, H (2005) 'Emotional Geographies', in Cloke, P, Crang, P and Goodwin, M (eds) *Introducing Human Geographies*. Hodder Arnold: London.

²⁸ Hall, E (2000) 'Blood, brain and bones: Taking the body seriously in the geography of health and impairment', *Area*, 32(1), pp21-29.

²⁹ Davidson, J and Milligan, C (2004) 'Embodying emotion sensing space: introducing emotional geographies', *Social and Cultural Geography*, 5(4), pp523-532.

³⁰ British Trust for Conservation Volunteers (2010) *Green Gym*. Accessed: 18/04/11/ Available at: <http://www2.btcv.org.uk/display/greengym>.

³¹ Parr, H (2007) 'Mental health, nature work, and social inclusion', *Environment and Planning D: Society and Space*, 25, pp537-561.

³² See reference 8 (Collins and Kearns, 2007).

³³ Conradson, D (2005) 'Freedom, space and perspective: Moving encounters with other ecologies', in Bondi, L, Davidson, J, Smith, M (2005) *Emotional Geographies*. Aldershot: Ashgate, pp103-116.

³⁴ Health Council of the Netherlands and Dutch Advisory Council for the Research on Spatial Planning, Nature and the Environment (2004) *Nature and Health: The influence of nature on social, psychological and physical well-being*. The Hague.

³⁵ Semprik, J, Aldridge, J, Becker, S (2003) *Social and therapeutic horticulture: Evidence and messages from research*. Loughborough: Loughborough University.

³⁶ Mooney, G and Fyfe, N (2006) 'New Labour and community protests: the case of the Govanhill Swimming Pool Campaign, Glasgow. *Local Economy*, 21(2), pp136-150.

³⁷ Thurber, C and Malinowski, J (1999) 'Summer camp as a therapeutic landscape', in Williams, A (ed) *Therapeutic Landscapes: the Dynamics Between Place and Wellness*. University Press of America: Lanam, MA, pp29-51.

³⁸ Lea, J (2008) 'Retreating to nature: rethinking 'therapeutic landscapes'', *Area*, 40 (10), pp90-98.

³⁹ Roberts, JM and Devine, F (2004) 'Some everyday experiences of voluntarism: social capital, pleasure and the contingency of participation', *Social Politics*, 11(2), pp280-296.

⁴⁰ Pain, R and Smith, SJ (2010) 'Introduction: Geographies of wellbeing', in Smith, SJ, Pain, R, Marston, SA, Jones III, JP (eds) *The SAGE Handbook of Social Geographies*. SAGE: London, pp299-307.

Townsend, M (2006) 'Feel blue? Touch green! Participation in forest/woodland management as a treatment for depression', *Urban Forestry and Urban Greening*, 5(3), pp111-120.

⁴¹ O'Brien, L, Townsend, M and Ebdon, M (2008) *Environmental volunteering: motivations barriers and benefits: Summary report*. Report to the Scottish Forestry Trust and Forestry Commission.

⁴² See reference 40 (Pain and Smith, 2010).

⁴³ Muirhead, S (forthcoming) *Nature and well-being: building social and emotional capital through environmental volunteering*. PhD thesis, University of Dundee.

⁴⁴ Dalgleish, J (2006) *The opportunities for environmental volunteering to deliver Scottish Executive policies: A discussion paper*. BTCV Scotland: Stirling.

⁴⁵ Schiellerup, P (2008) 'Insider perspectives on institutional change in contemporary British forestry: identity and environmental governance', *Environment and Planning C*, 26, pp1061-1076.

⁴⁶ Scottish Executive (2006) *Scottish Forestry Strategy*. Accessed: 17/04/11. Available at: [http://www.forestry.gov.uk/pdf/SFS2006fcfc101.pdf/\\$FILE/SFS2006fcfc101.pdf](http://www.forestry.gov.uk/pdf/SFS2006fcfc101.pdf/$FILE/SFS2006fcfc101.pdf)

⁴⁷ Forestry Commission Scotland (2009) *Woods for Health*. Accessed: 21/04/11. Available at: [http://www.forestry.gov.uk/pdf/fcfc011.pdf/\\$FILE/fcfc011.pdf](http://www.forestry.gov.uk/pdf/fcfc011.pdf/$FILE/fcfc011.pdf)

⁴⁸ National Care Farming Initiative website (2010) Accessed: 22/04/11. Available at: <http://www.ncfi.org>

⁴⁹ See reference 22 (Hine et al., 2008).

⁵⁰ Milton, K (2002) *Loving nature: towards an ecology of emotion*. Routledge: London.

⁵¹ See reference 41 (O'Brien et al., 2008).

⁵² CJC Consulting (2005) *Economic Benefits of Accessible Green Spaces for Physical and Mental Health: Scoping study*. Report for the Forestry Commission.

⁵³ See reference 24 (Pretty et al., 2005).

⁵⁴ See reference 40 (Pain and Smith, 2010).